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<110>   KROHN, Kai
        HEINO, Maarit
        PETERSON, Part
        SCOTT, Hamish
        ANTONARAKIS, Stylianos
        LALIOTI, Maria D.
        SHIMIZU, Nobuyoshi D.
        KUDOH, Jun D.

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Leu His Ala Leu Ala Asp His Asp Val Val Pro Glu Asp Lys Phe Gln
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Glu Thr Leu His Leu Lys Glu Lys Glu Gly Cys Pro Gln Ala Phe His
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Phe Trp Arg Val Leu Phe Lys Asp Tyr Asn Leu Glu Arg Tyr Gly Arg
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ctg cag ccc atc ctg gac agc ttc ccc aaa gat gtg gac ctc agc cag       460
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Glu Asp Ser Gly Ser Gly Lys Asn Lys Ala Arg Ser Ser Ser Gly Pro
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Ala Phe His Leu Ala Cys Leu Ser Pro Pro Leu Arg Glu Ile Pro Ser
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Gly Thr Trp Arg Cys Ser Ser Cys Leu Gln Ala Thr Val Gln Glu Val
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Page 2

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Ala Pro Gly Ala Arg Cys Gly Val Cys Gly Asp Gly Thr Asp Val Leu
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cgg tgt act cac tgc gcc gct gcc ttc cac tgg cgc tgc cac ttc cca     1516
Arg Cys Thr His Cys Ala Ala Ala Phe His Trp Arg Cys His Phe Pro
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Ala Gly Thr Ser Arg Pro Gly Thr Gly Leu Arg Cys Arg Ser Cys Ser
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gga gac gtg acc cca gcc cct gtg gag ggg gtg ctg gcc ccc agc ccc     1612
Gly Asp Val Thr Pro Ala Pro Val Glu Gly Val Leu Ala Pro Ser Pro
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Ala Arg Leu Ala Pro Gly Pro Ala Lys Asp Asp Thr Ala Ser His Glu
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ccc gct ctg cac agg gat gac ctg gag tcc ctt ctg agc gag cac acc     1708
Pro Ala Leu His Arg Asp Asp Leu Glu Ser Leu Leu Ser Glu His Thr
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Ala Pro Phe Pro Ser
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Trp Leu Leu Thr Gln Asp Ser Thr Ala Ile Leu Asp Phe Trp Arg Val
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Leu Phe Lys Asp Tyr Asn Leu Glu Arg Tyr Gly Arg Leu Gln Pro Ile
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Leu Asp Ser Phe Pro Lys Asp Val Asp Leu Ser Gln Pro Arg Lys Gly
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145                 150                 155                 160

Lys Pro Pro Lys Lys Pro Glu Ser Ser Ala Glu Gln Gln Arg Leu Pro
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Leu Gly Asn Gly Ile Gln Thr Met Ser Ala Ser Val Gln Arg Ala Val
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Ala Met Ser Ser Gly Asp Val Pro Gly Ala Arg Gly Ala Val Glu Gly
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Ile Leu Ile Gln Gln Val Phe Glu Ser Gly Gly Ser Lys Lys Cys Ile
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Gln Val Gly Gly Glu Phe Tyr Thr Pro Ser Lys Phe Glu Asp Ser Gly
225                 230                 235                 240

Ser Gly Lys Asn Lys Ala Arg Ser Ser Ser Gly Pro Lys Pro Leu Val
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Arg Ala Lys Gly Ala Gln Gly Ala Ala Pro Gly Gly Gly Glu Ala Arg
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Leu Gly Gln Gln Gly Ser Val Pro Ala Pro Leu Ala Leu Pro Ser Asp
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Pro Gln Leu His Gln Lys Asn Glu Asp Glu Cys Ala Val Cys Arg Asp
    290             295             300

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Ala Cys Leu Ser Pro Pro Leu Arg Glu Ile Pro Ser Gly Thr Trp Arg
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Cys Ser Ser Cys Leu Gln Ala Thr Val Gln Glu Val Gln Pro Arg Ala
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Glu Glu Pro Arg Pro Gln Glu Pro Pro Val Glu Thr Pro Leu Pro Pro
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Gly Leu Arg Ser Ala Gly Glu Glu Val Arg Gly Pro Pro Gly Glu Pro
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Cys Ala Ala Ala Phe His Trp Arg Cys His Phe Pro Ala Gly Thr Ser
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Pro Ala Pro Val Glu Gly Val Leu Ala Pro Ser Pro Ala Arg Leu Ala
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Pro Gly Pro Ala Lys Asp Asp Thr Ala Ser His Glu Pro Ala Leu His
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aga cca gat gga tgg gga aca ggt ggt cag ggc aga att tca ggc cct    383
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Val Leu Ala Pro Ser Pro Ala Arg Leu Ala Pro Gly Pro Ala Lys Asp
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Asp Thr Ala Ser His Glu Pro Ala Leu His Arg Asp Asp Leu Glu Ser
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Leu Leu Ser Glu His Thr Phe Asp Gly Ile Leu Gln Trp Ala Ile Gln
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Arg Cys Cys Trp Gly Ser Cys Phe Gly Lys Glu Val Ala Leu Arg Arg
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Val Leu His Pro Ser Pro Val Cys Met Gly Val Ser Cys Leu Cys Gln
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Gln Ala Thr Val Gln Glu Val Gln Pro Arg Ala Glu Glu Pro Arg Pro
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Gln Glu Pro Pro Val Glu Thr Pro Leu Pro Pro Gly Leu Arg Ser Ala
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Gly Glu Glu Val Arg Gly Pro Pro Gly Glu Pro Leu Ala Gly Met Asp
            180                 185                 190


Thr Thr Leu Val Tyr Lys His Leu Pro Ala Pro Pro Ser Ala Ala Pro
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225                 230                 235                 240

Gly Asp Gly Thr Asp Val Leu Arg Cys Thr His Cys Ala Ala Ala Phe
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His Trp Arg Cys His Phe Pro Ala Gly Thr Ser Arg Pro Gly Thr Gly
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Gly Val Leu Ala Pro Ser Pro Ala Arg Leu Ala Pro Gly Pro Ala Lys
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Asp Asp Thr Ala Ser His Glu Pro Ala Leu His Arg Asp Asp Leu Glu
305                 310                 315                 320

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          5                   10                  15

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Gly Ser Met Gly Ala Gly Gln Arg Leu Gly Ser Ser Gly Thr Gln Arg
50                  55                      60                      65

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Cys Cys Trp Gly Ser Cys Phe Gly Lys Glu Val Ala Leu Arg Arg Val
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Leu His Pro Ser Pro Val Cys Met Gly Val Ser Cys Leu Cys Gln Lys
                85                      90                      95

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Cys Asp Gly Cys Pro Arg Ala Phe His Leu Ala Cys Leu Ser Pro Pro
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ctc cgg gag atc ccc agt ggg acc tgg agg tgc tcc agc tgc ctg cag          671
Leu Arg Glu Ile Pro Ser Gly Thr Trp Arg Cys Ser Ser Cys Leu Gln
130                     135                     140                     145

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                150                     155                     160

gag cca ccc gtg gag acc ccg ctc ccc ccg ggg ctt agg tcg gcg gga          767
Glu Pro Pro Val Glu Thr Pro Leu Pro Pro Gly Leu Arg Ser Ala Gly
                165                     170                     175

gag gag ccc cgc tgc cag ggc tgg act cct cgg ccc tgc acc ccc tac         815
Glu Glu Pro Arg Cys Gln Gly Trp Thr Pro Arg Pro Cys Thr Pro Tyr
            180                     185                     190

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Trp Arg Pro Asp Gly Trp Gly Thr Gly Gly Gln Gly Arg Ile Ser Gly
        35                  40                  45


Pro Gly Ser Met Gly Ala Gly Gln Arg Leu Gly Ser Ser Gly Thr Gln
    50                  55                  60


Arg Cys Cys Trp Gly Ser Cys Phe Gly Lys Glu Val Ala Leu Arg Arg
65                  70                  75                  80


Val Leu His Pro Ser Pro Val Cys Met Gly Val Ser Cys Leu Cys Gln
                85                  90                  95


Lys Asn Glu Asp Glu Cys Ala Val Cys Arg Asp Gly Gly Glu Leu Ile
                100                 105                 110


Cys Cys Asp Gly Cys Pro Arg Ala Phe His Leu Ala Cys Leu Ser Pro
            115                 120                 125


Pro Leu Arg Glu Ile Pro Ser Gly Thr Trp Arg Cys Ser Ser Cys Leu
    130                 135                 140


Gln Ala Thr Val Gln Glu Val Gln Pro Arg Ala Glu Glu Pro Arg Pro
145                 150                 155                 160


Gln Glu Pro Pro Val Glu Thr Pro Leu Pro Pro Gly Leu Arg Ser Ala
                165                 170                 175


Gly Glu Glu Pro Arg Cys Gln Gly Trp Thr Pro Arg Pro Cys Thr Pro
            180                 185                 190
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Tyr Cys Val Trp Val Leu Arg Val Ser Arg Thr Trp Leu Leu Val Arg
        195                 200             205

Val Ala Gly Cys Ala Glu Met Val Arg Thr Cys Cys Gly Val Leu Thr
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Gly Pro Gly Arg Ala Cys Ala Ala Asp Pro Ala Gln Glu Thr
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<210>   7
<211>   20
<212>   DNA
<213>   ARTIFICIAL

<220>
<223>   Description of Artificial Sequence: PRIMER

<400>   7
gatgacactg ccagtcacga                                              20


<210>   8
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<212>   DNA
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<220>
<223>   Description of Artificial Sequence: PRIMER

<400>   8
gttcccgagt ggaaggcgct gc                                           22


<210>   9
<211>   20
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<220>
<223>   Description of Artificial Sequence: PRIMER

<400>   9
aggggacagg caggccaggt                                              20


<210>   10
<211>   24
<212>   DNA
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<220>
<223>   Description of Artificial Sequence: PRIMER

<400>   10
gagttcaggt acccagagat gctg                                         24
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<220>
<223>    Description of Artificial Sequence: PRIMER

<400>    11
ctcgctcaga agggactcca                                              20


<210>    12
<211>    23
<212>    DNA
<213>    ARTIFICIAL

<220>
<223>    Description of Artificial Sequence: PRIMER

<400>    12
ggattcagac catgtcagct tca                                          23


<210>    13
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<212>    DNA
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<220>
<223>    Description of Artificial Sequence: PRIMER

<400>    13
gtgctgttca aggatcacaa c                                            21


<210>    14
<211>    21
<212>    DNA
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<220>
<223>    Description of Artificial Sequence: PRIMER

<400>    14
tggatgagga tcccctccac g                                            21


<210>    15
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<220>
<223>    Description of Artificial Sequence: PRIMER

<400>    15
ccatcctaat acgactcact atagggc                                      27


<210>    16
<211>    20
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<212>  DNA
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<220>
<223>  Description of Artificial Sequence: PRIMER

<400>  16
tgcaggctgt gggaactcca                                              20


<210>  17
<211>  22
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<220>
<223>  Description of Artificial Sequence: PRIMER

<400>  17
agaaaaagag ctgtaccctg tg                                           22


<210>  18
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<220>
<223>  Description of Artificial Sequence: PRIMER

<400>  18
tgcaaggaag aggggcgtca gc                                           22


<210>  19
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<220>
<223>  Description of Artificial Sequence: PRIMER

<400>  19
tccaccacaa gccgaggaga t                                            21


<210>  20
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<213>  ARTIFICIAL

<220>
<223>  Description of Artificial Sequence: PRIMER

<400>  20
acgggctcct caaacaccac t                                            21


<210>  21
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<220>
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<223> Description of Artificial Sequence: PRIMER

<400> 21
tggagatggg caggccgcag ggtg                                              24


<210> 22
<211> 24
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<220>
<223> Description of Artificial Sequence: PRIMER

<400> 22
cagtccagct gggctgagca ggtg                                              24


<210> 23
<211> 24
<212> DNA
<213> ARTIFICIAL

<220>
<223> Description of Artificial Sequence: PRIMER

<400> 23
gcggctccaa gaagtgcatc cagg                                              24


<210> 24
<211> 24
<212> DNA
<213> ARTIFICIAL

<220>
<223> Description of Artificial Sequence: PRIMER

<400> 24
ctccaccctg caaggaagag gggc                                              24


<210> 25
<211> 16
<212> PRT
<213> ARTIFICIAL

<220>
<223> Description of Artificial Sequence: PRIMER

<400> 25

Thr Leu His Leu Lys Glu Lys Glu Gly Cys Pro Val Gln Ala Phe His
1               5                   10                  15


<210> 26
<211> 15
<212> PRT
<213> ARTIFICIAL

<220>
<223> Description of Artificial Sequence: PRIMER

Page 15

<400> 26

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Cys Lys Asn Lys Ala Arg Ser Ser Ser Gly Pro Lys Pro Leu Val
1               5                   10                  15
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<210> 27
<211> 24
<212> DNA
<213> ARTIFICIAL

<220>
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<400> 27
atggcgacgg acgcggcgct acgc                                          24

<210> 28
<211> 24
<212> DNA
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<220>
<223> Description of Artificial Sequence: PRIMER

<400> 28
cctggatgta cttcttggag ccgc                                          24

<210> 29
<211> 24
<212> DNA
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<220>
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<400> 29
gagcccgagg ggccgtggag ggga                                          24

<210> 30
<211> 24
<212> DNA
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<400> 30
ggctgcacct cctggactgt tgcc                                          24

<210> 31
<211> 24
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<220>
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<400> 31
gatcctgctc aggagacgtg accc                                          24

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<210>   32
<211>   24
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<223>   Description of Artificial Sequence: PRIMER

<400>   32
caccaggcaa ggagaggctc ccgg                                          24


<210>   33
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<220>
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<400>   33
ccaccccatg gcgacggacg                                               20


<210>   34
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<212>   DNA
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<220>
<223>   Description of Artificial Sequence: PRIMER

<400>   34
ggaattcgga ggggaagggg gccgccgga                                     29


<210>   35
<211>   24
<212>   DNA
<213>   ARTIFICIAL

<220>
<223>   Description of Artificial Sequence: PRIMER

<400>   35
ggactgagga aggaggtgtc cttc                                          24


<210>   36
<211>   42
<212>   PRT
<213>   HOMO SAPIENS

<400>   36

Cys Gly Val Cys Gly Asp Gly Thr Asp Val Leu Arg Cys Thr His Cys
1               5                   10                  15


Ala Ala Ala Phe His Trp Arg Cys His Phe Pro Ala Gly Thr Ser Arg
            20                  25                  30
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Pro Gly Thr Gly Leu Arg Cys Arg Ser Cys
            35                  40


<210> 37
<211> 42
<212> PRT
<213> HOMO SAPIENS

<400> 37

Cys Glu Val Cys Gln Gln Gly Gly Glu Ile Ile Leu Cys Asp Thr Cys
1               5                   10                  15


Pro Arg Ala Thr His Met Val Cys Leu Asp Pro Asp Met Glu Lys Ala
            20                  25                  30


Pro Glu Gly Leu Trp Ser Cys Pro His Cys
            35                  40


<210> 38
<211> 42
<212> PRT
<213> HOMO SAPIENS

<400> 38

Cys Arg Val Cys Lys Asp Gly Gly Glu Leu Ile Cys Cys Asp Thr Cys
1               5                   10                  15


Pro Ser Ser Tyr His Ile His Cys Leu Asn Pro Pro Leu Pro Glu Ile
            20                  25                  30


Pro Asn Gly Glu Trp Leu Cys Pro Arg Cys
            35                  40


<210> 39
<211> 42
<212> PRT
<213> HOMO SAPIENS

<400> 39

Cys Ala Val Cys Gln Asn Gly Gly Glu Leu Ile Cys Cys Glu Leu Cys
1               5                   10                  15


Pro Lys Val Phe His Leu Ser Cys Gly Val Pro Thr Leu Thr Asn Phe
            20                  25                  30


Pro Ser Gly Glu Thr Ile Cys Thr Phe Cys
            35                  40